

**Work Order ID 63591**

Thursday, November 04, 2010 11:44:43 AM

Page 1

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:   *M*  Date: 10-11-04

Tooling:

Date:           QC:           Date:           SPC (Y/N):           Date:           

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

D350-748-141

Rev E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile &amp; type labels per PPPD350-748-101 CHG001

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

120

0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

*DP* for CL 11-02-10  
10-12-9

*DP* 10-12-9

1 10-12-09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63591

Thursday, November 04, 2010 11:44:43 AM



Page 2

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

125

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

\*\*\*Stress relief\*\*\*

Heat treat crosstube as per QSI010 4.3

Temp: 275

Start time: 4h30

Finish time: 5h30

SAD  
10-12-10

①

127

QC5- Inspect part completeness to step on W/O

0.00



QC

see FAI sheet for measure  
Memo

0.00

Quality Control

AFH stress relief

8 10/12/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63591

Thursday, November 04, 2010 11:44:43 AM

Page 3

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00

Customer:



Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	Crosstubes	0.00				<u>1</u>			
Crosstubes	<b>Memo</b>	0.00							
Crosstubes	1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs, Set-up drill table as per QSI 010								
	2-Deburr								
	3-Engrave Part # and Batch # as per Dwg D350-748-141								
	4-Remove all marks from tube within limits of D350-748-141								
	5- Apply a light coat of LPS3 on the interior of tube Batch: <u>109956</u>								
140 	QC5- Inspect part completeness to step on W/O	0.00							
QC	<b>Memo</b>	0.00							
Quality Control	CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)								

140.5

DEFLECT Xtube

10/12/21

Issue P10 Accumen for NDT R10:13181

CY10112121 ①

no'd + inspect attached report NDT R10 W10

for p1 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 63591

Thursday, November 04, 2010 11:44:43 AM

Page 4

Item ID: D350-748-101

Accept

Revisor ID:

Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00

Required Date: 11/25/2010 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start  
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150



Outsource3

Outsource process - Cad plate

Outsource process-Cadplate per QSI017 4.1.9.1

0.00

Memo

0.00

Issue P/O: 13189  
Stress relief at 375° for 5 hours  
Magnetic Particle Inspect per ASTM E1444  
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2  
Embrittle relief at 375° for 8 hours, Chromate Treat  
Possible Supplier: Southwest United Industries  
Ensure Certificate of Conformity is attached

C2 10/12/22 ①

160



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Memo

0.00

Ensure certificate of conformity is attached

10/01/18 ①

170



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

twist 2 .009"

SPM

81.600" issued P/O: Aaron KPI per ASTM 1417 level 2 and PI as per QSI038

P/O: 13367

C2 11/01/26 ①

10/01/26

rec'd + inspect + attached c/c to w/o

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**Work Order ID 63591**

Page 5

Thursday, November 04, 2010 11:44:43 AM

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Installation, High Fwd

Stop



Start Date: 11/4/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180		0.00							
	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2								
190		0.00							
	QC14- Inspect Spray Paint								
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								
200		0.00							
	Crosstubes								
Crosstubes	Memo	0.00							
Crosstubes	1-Install Ground wire Insert, then insert screw and washer 2-Install Abraison strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 63591**

Page 6

Thursday, November 04, 2010 11:44:43 AM

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00

8/10/2010



QC

Memo

0.00

Quality Control

(40)

220

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

11/2/10

230

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8/10/2010

(40)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 63591**

Thursday, November 04, 2010 11:44:43 AM

Page 7

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010 Start Qty: 1.00

Cust Item ID:

Required Date: 11/25/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

240

0.00



Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D350-748-101

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

250

0.00



QC

QC21- Final Inspection - Work Order Release

Memo

0.00

Quality Control

11/04/10

11/02/14

mf  
11-02+19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, November 04, 2010 11:44:47 AM

Page 1

Work Order ID: 63591

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010

Required Date: 11/5/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM  
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev:C Rev B 07-11-15 DD  
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F  
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-141TRN 		Manufactured	No			110	Each	0.0000	1	1			
Crosstube Turning Detail													
ALS4-1032-225 		Purchased	No			200	Each	4,680.000	1	1			
Insert													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				PK011		4680							
				110768		4680							
AN960JD10 	NAS1149D0363J	Purchased	No			200	Each	8.0000	1	1			
Washer													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST		6							
				107715		6							
				ST335		2							
				105792		2							
D2856-400 		Manufactured	No			200	f	175.2500	1.181	1.243158			
Abraison Strip													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST403		175.2500421							
				56626		0.00004211							
				59920		175.25							

B61138

DP 10-12-9

11.02.08

11.02.08

R# 116007

11.02.08

R# 63735

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Thursday, November 04, 2010 11:44:48 AM

Page 2

Work Order ID: 63591

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010

Required Date: 11/23/2010

Start Qty: 1.00

Required Qty: 1.00

D3502-1

Manufactured No

200

Each

48.0000

2

2



Support



ml 11-02-08

## Location

## Loc Qty

## Loc Code

ST063

24

61206

12

61843

12

ST066

24

50287

23

52903

1

MS21920-20

Purchased

No

200

Each

57.0000

2

2



Clamp (per MIL-DTL-8783C)



ml 11-02-08

## Location

## Loc Qty

## Loc Code

LG

57

112624

2

114687

1

115057

4

115736

50

MS27039-1-10

Purchased

No

200

Each

131.0000

1

1



Screw



ml 11-02-08

## Location

## Loc Qty

## Loc Code

ST291

131

112794

3

112940

28

115935

100

Thursday, November 04, 2010 11:44:48 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, November 04, 2010 11:44:48 AM

Page 3

Work Order ID: 63591

Parent Item: D350-748-101

Parent Item Name: Crossstube Installation, High Fwd

Start Date: 11/4/2010

Required Date: 11/15/2010

Start Qty: 1.00

Required Qty: 1.00

AN4-41A Purchased No

220 Each

252.0000

8

8



Bolt

Location

Loc Qty

Loc Code

ST360

252

111424

4

113359

1

114941

57

115108

100

115374

40

115705

50



11/2/10

AN4-6A Purchased No

220 Each

956.0000

16

16



Bolt

Location

Loc Qty

Loc Code

ST356

956

112933

96

113149

17

115108

143

115457

500

115936

200



11/2/10

AN5-32A Purchased No

220 Each

252.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

252

114405

42

115016

50

115108

50

115589

60

115698

50



11/2/10

Thursday, November 04, 2010 11:44:48 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, November 04, 2010 11:44:48 AM

Page 4

Work Order ID: 63591

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010

Required Date: 11/25/2010

Start Qty: 1.00

Required Qty: 1.00

AN960JD416 NAS1149D0463J Purchased

No

220

Each

24.0000

32

32



Washer



M116304 11/2/10

Location

Loc Qty

Loc Code

ST300

24

113288

24

AN960JD516 NAS1149D0563J Purchased

No

220

Each

34.0000

8

8



Washer



M114742 11/2/10

Location

Loc Qty

Loc Code

ST

34

103694

18

107534

12

109287

4

D3500-1 Manufactured

No

220

Each

31.0000

4

4



Saddle



11/2/10

Location

Loc Qty

Loc Code

ST424

31

55605

2

60489

4

61650

25

Thursday, November 04, 2010 11:44:48 AM

Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, November 04, 2010 11:44:48 AM

Work Order ID: 63591

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 11/4/2010

Required Date: 11/25/2010

Start Qty: 1.00

Required Qty: 1.00

D3501-1

Manufactured No

220

Each

410.0000

16

16



Bushing



11/21/10

Location

Loc Qty

Loc Code

ST066

410

45402

15

45918

112

48268

3

53779

20

~~61196~~

100

61837

60

61984

100

MS21042L4

Purchased

No

220

Each

2,801.000

24

24



Nut



11/16/10 11/2/10

Location

Loc Qty

Loc Code

ST300

2801

113422

25

114523

8

115108

22

115589

1646

115621

1100

MS21042L5

Purchased

No

220

Each

731.0000

4

4



Nut



11/21/10

Location

Loc Qty

Loc Code

ST139

26

114813

26

ST300

705

115156

205

115594

500

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

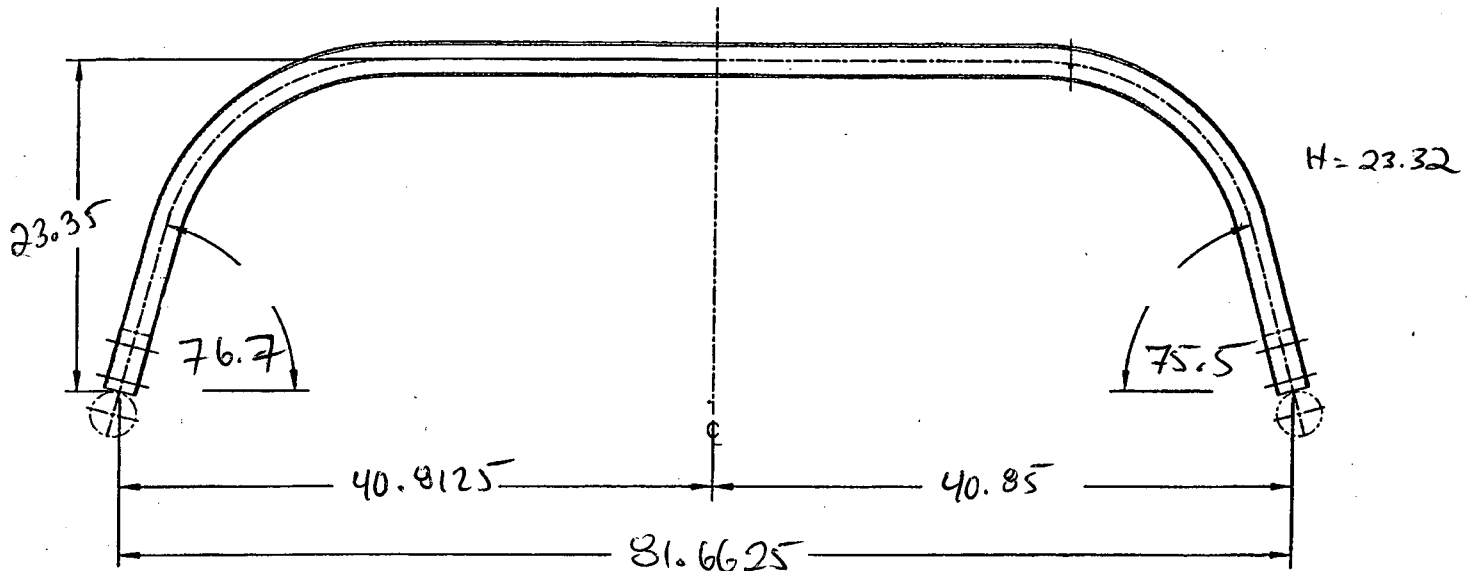
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DART AEROSPACE LTD		Work Order:	13594
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
0.3° ± 0.248" twist from cv KF to cv FR
No buckling on bend
Acceptable 10.12.09

QC15 Inspection	per Eng
Date	10.12.09

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	10.08.23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

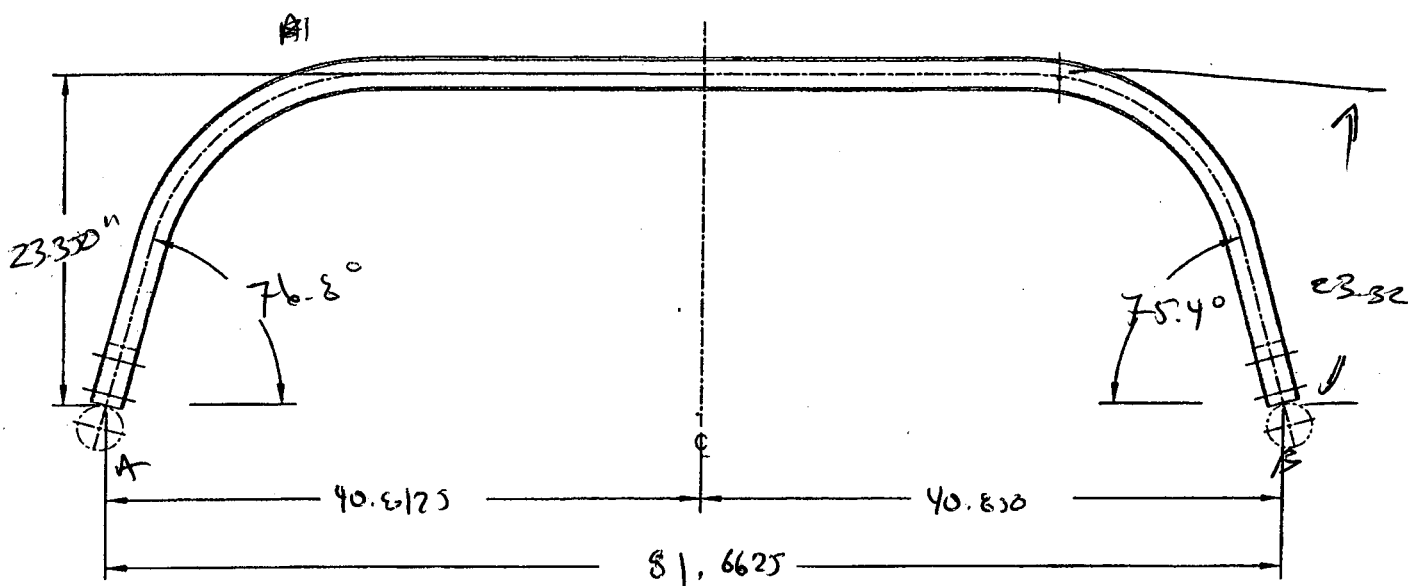
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Dims After ~~last~~ Stress Relief

Comments
twist = .245"

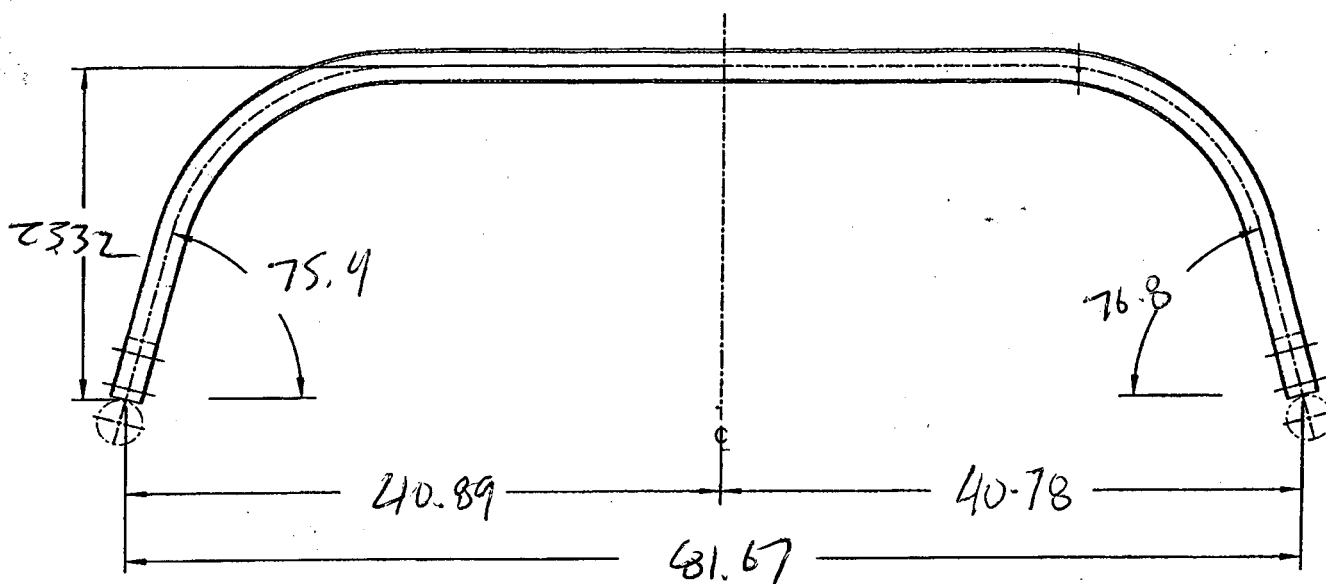
QC15 Inspection	8
Date	10/12/13

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

1006-23

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141      Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
AFTER DEFLECTION TEST

QC15 Inspection	CP 10.12.22
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

*[Signature]* 10.08.23

Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6017-115	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6017-115  
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.  
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 63591

*B/10-11-04*

UNDER REVIEW

RELEASED  
2009-10-29

E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.51
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>RF</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>RF</i>	DRAWING NO. D350-748-141	
CHECKED	<i>RF</i>	REV. E SHEET 1 OF 4	
MFG. APPR.	<i>RF</i>	TITLE SCALE	
APPROVED	<i>RF</i>	CROSSTUBE (AS 350/355 HI FWD) NTS	
DE APPR.	<i>RF</i>	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	09.09.30		

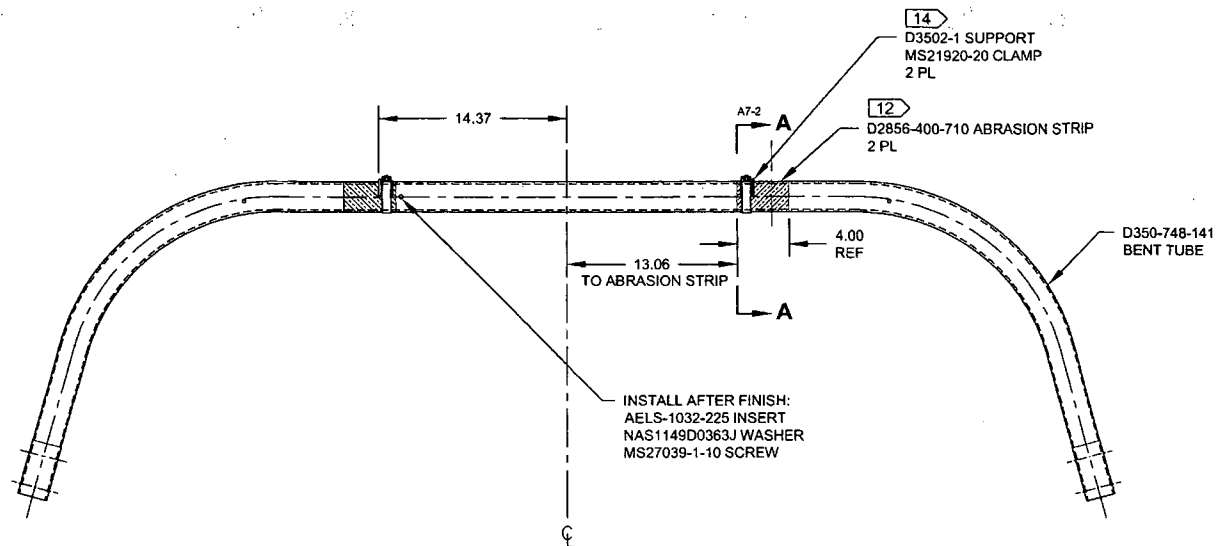
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

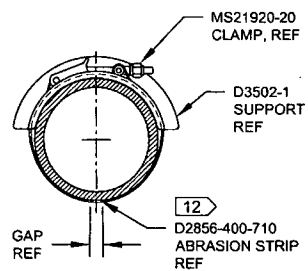
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D350-748-141  
ASSEMBLY DETAIL**

*w/o 63591*



**SECTION A-A** D4-2  
SCALE 4X

**RELEASED**  
2009-10-29  
*MP*

DESIGN	<i>Q</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>Q</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>Q</i>	D350-748-141	SHEET 2 OF 4
APPROVED	<i>Q</i>	TITLE	SCALE
DE APPR.	<i>Q</i>	CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	09.09.30	<small>COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

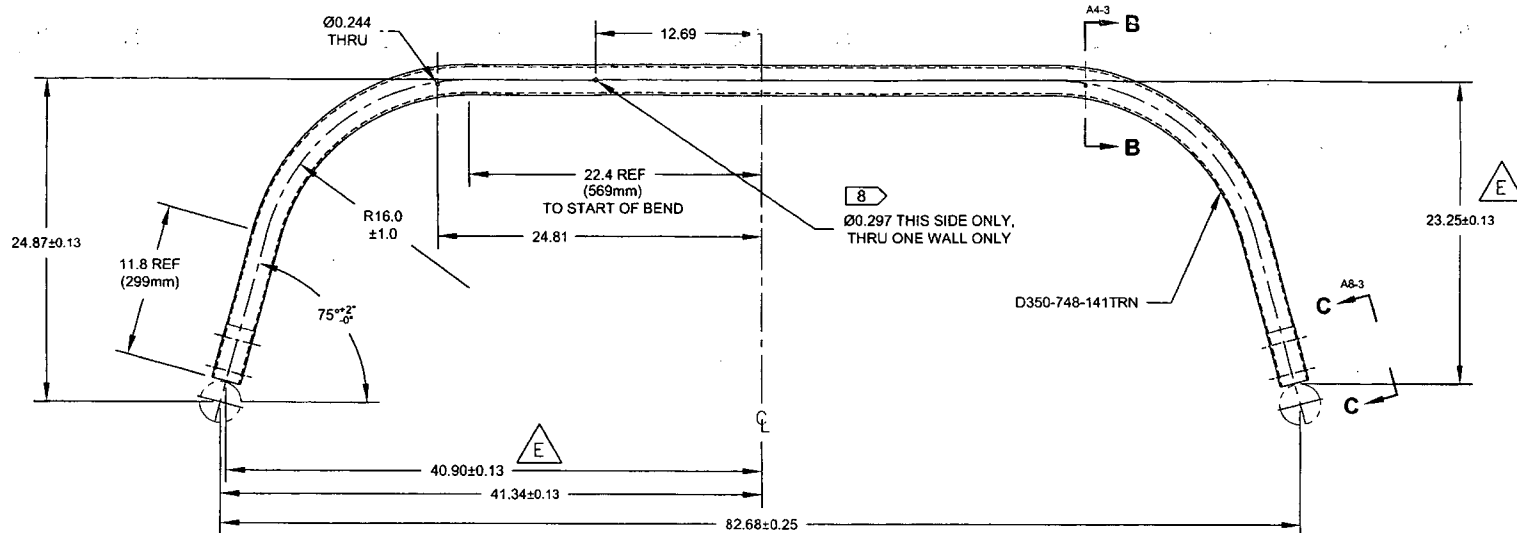
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

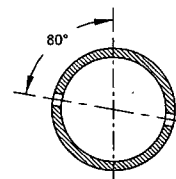
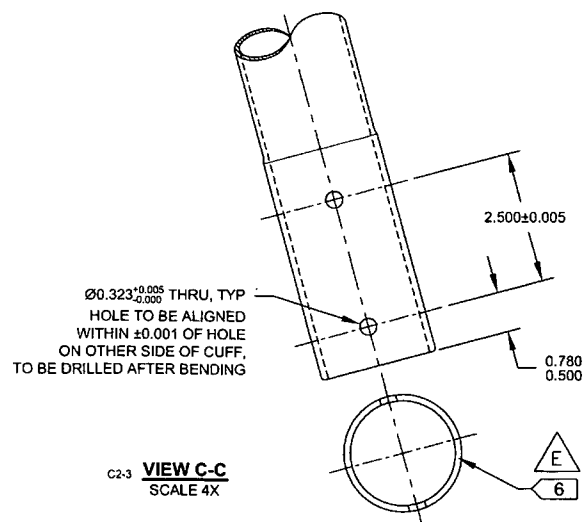
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





**D350-748-141**  
**BENDING AND DRILLING DETAIL** 10



**SECTION B-B** D3-3  
 SCALE 4X

u/o 63591

**RELEASED**  
 2009 -10-29

DESIGN	97	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. E
MFG. APPR.	97	D350-748-141	SHEET 3 OF 4
APPROVED	97	TITLE	SCALE
DE APPR.	97	CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

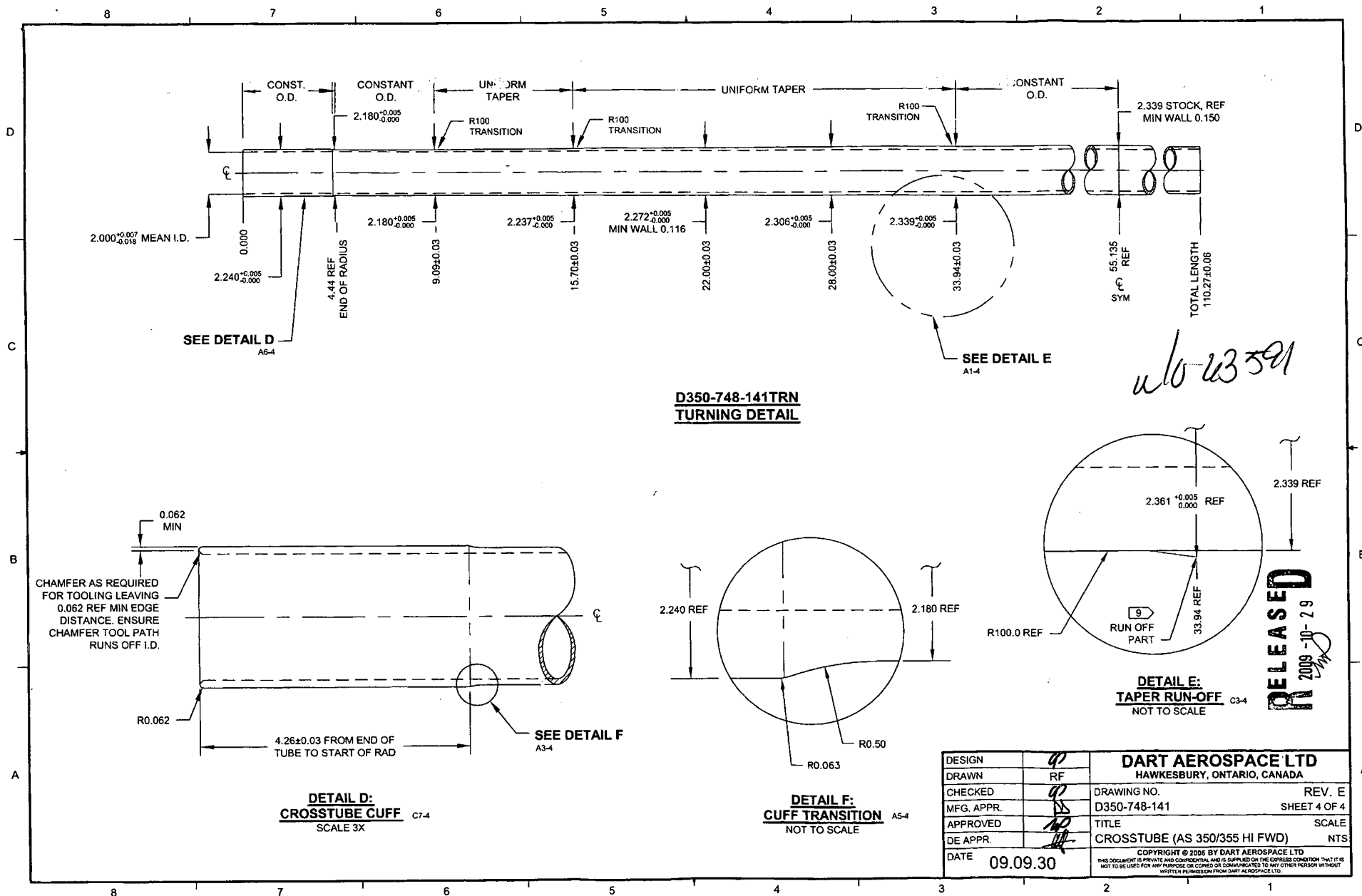
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



## LIQUID PENETRANT TEST REPORT

P- 15199

PAGE 1 OF 1

CLIENT DART AEROSPACE DATE DEC. 21-2010 TIME AM ☒ PM ☐  
ATTENTION LINDA LACELLE ACUREN JOB NO. 188-10-0971  
ADDRESS 1270 ABELEEN ST. PO/VO NO. 13181  
HAWKESBURY CNT. WORK LOCATION HAWKESBURY PLANT  
ACCEPTANCE STD. ASTM 1417 REV./DATE 2005  
PROJECT SIX CROSS TUBES INSPECT + REINSPECT  
ITEM(S) EXAMINED AFTER DEFLECTION. PROCESS.

JOB DESCRIPTION PROCEDURE NO. LT-002 REV./DATE 2008 TECHNIQUE NO. LT-002 REV./DATE 2008  
PART NO. - MATERIAL STEEL THICKNESS VARIOUS  
SCOPE WET FLOUORESCENT LIQUID PENETRANT INSPECTION  
CARRIED OUT 100% EXTERNAL

## TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND MAGNA FLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT ZL67 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LAGINO  
DEVELOPER SKD52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE OCT-19-2011  
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

## TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☒ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

RESULTS- ( ☐ METRIC ☐ IMPERIAL )

1 - CROSS TUBE - W.O. 61768	✓
1 - CROSS TUBE - W.O. 61767	✓
1 - CROSS TUBE - W.O. 61770	✓
1 - CROSS TUBE - W.O. 61769	✓
1 - CROSS TUBE - W.O. 63592	✓
1 - CROSS TUBE - W.O. 63591	✓
1 - CROSS TUBE - W.O. 61768	✓
1 - CROSS TUBE - W.O. 61767	✓
1 - CROSS TUBE - W.O. 61770	✓
1 - CROSS TUBE - W.O. 61769	✓
1 - CROSS TUBE - W.O. 63592	✓
1 - CROSS TUBE - W.O. 63591	✓

REINSPECTED  
AFTER DEFLECTION  
RESULTS AS FOLLOWS.

10.12.21

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion are the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE R. Titley DTR # E63236  
TECHNICIAN (SIGNATURE): [Signature] REPORT REVIEWED BY:  
NAME (PRINT): Mike Johnston NAME INITIALS  
1<sup>ST</sup> TECHNICIAN 2<sup>ND</sup> TECHNICIAN  
CGSB LEVEL # SNT LEVEL # CGSB LEVEL # SNT LEVEL #  
CGSB REG. No 6606 CGSB REG. No #



# Dart Aerospace Ltd

W/O: 63591

## WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
10.12.21	140.5	- DEFLECT TUBE TO 3500 lbs FOR 1 MINUTE. - RE-MEASURE HEIGHT & WIDTH.	CP	10.12.21		CP 10.12.21 QSI 042	
10.12.21	140.6	NDT Tube following deflection testing.				CP 10.12.21 QSI 042	

Part No: D350-748-101 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-14-2011

**CONSIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawksbury, ON K6A 1K7

**W/O #:** 101004

**INVOICE #:** 52908

**CONTRACT OR  
PURCHASE ORDER #**

13189

**DESCRIPTION:** SKID

**QTY** 1

**P/N #** d350-748-101

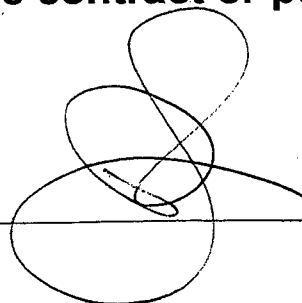
**S/N #** B63591

**STRESS RELIEF BAKE @375 DEG. BAKE HEAT CHART #11-5. MPI  
INSPECTED IAW ASTM-E-1444. CADMIUM PLATED IAW AMS-QQ-P-  
416C, TYPE 2 YELLOW, CLASS 1. BAKE HEAT CHART #11-24.**

*8/15/24*

**CERTIFICATE: I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.**

**Approved Inspector:**







# LIQUID PENETRANT TEST REPORT

P- 05496

CLIENT: DART AEROSPACE DATE: JAN/26/2011 PAGE: 1 OF 2  
ATTENTION: LINDA LARCELLE / CHANTALE / IAN ACUREN JOB NO.: 188-11- TIME: AM ☒ PM ☐  
ADDRESS: 1270, ABERDEN ST. PO/WO NO.: AS ADDRESS  
HAWKESBURY, ON WORK LOCATION: AS ADDRESS  
ACCEPTANCE STD.: ASTM1417/GBI-038 REV./DATE: 2005  
PROJECT: WET FLUO PENETRANT INSPECTION ON 14 "CROSSTUBES"; 4 "COLLECTIVE BELL CRACK"  
ITEM(S) EXAMINED: SEE BELOW

OB DESCRIPTION: PERFORMED A WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 100% OF THE EXTERNAL SURFACE  
ART NO.: ALUMINUM MATERIAL: ALUMINUM THICKNESS: N/A  
SCOPE: PERFORMED A WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 100% OF THE EXTERNAL SURFACE

TEST DETAILS  
METHOD: ☒ FLUORESCENT ☐ VISIBLE ☐ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
AMILY BRAND: MAGNA FLUX BLACK LIGHT S/N: 13798 OUTPUT > 1000  $\mu$  W/CM<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT: 26-67 MINIMUM DWELL TIME: 10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER: H<sub>2</sub>O MINIMUM DRY TIME: >10 MIN. OTHER:    
DEVELOPER: SKD-52 MINIMUM DWELL TIME: 10 MIN. LIGHT METER S/N:   CAL DUE DATE: FEB/25/2011  
DEVELOPER TYPE: ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE  
SURFACE CONDITION: ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE: ☐ < - 4°C/ 20°F ☐ - 4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS-		<input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL	
SL	COMMENTS	ACCEPT	REJECT
1	4X "COLLECTIVE BELL CRACK"	✓	
2	CROSS-TUBE W.O. ID 63591	✓	
3	CROSS-TUBE W.O. ID 63592	✓	
4	CROSS-TUBE W.O. ID 63746	✓	
5	CROSS-TUBE W.O. ID 63747	✓	
6	CROSS-TUBE W.O. ID 63748	✓	
7	CROSS-TUBE W.O. ID 63749	✓	

SEE Page 2 of 2

→ W.O. ID 64913 → ITEM ID: - D350-748-1-007
→ ITEM ID: - D350-748-101 (H. F.)
→ ITEM ID: - D350-748-101 (H. F.)
→ ITEM ID: - D350-748-201 (H. A.)
→ ITEM ID: - D350-748-201 (H. A.)
→ ITEM ID: - D350-748-201 (H. A.)
→ ITEM ID: - D350-748-201 (H. A.)

Scope of Services: The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care: In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES  
CLIENT REPRESENTATIVE: Ian Titley DTR# E63121  
TECHNICIAN (SIGNATURE): VESDESROSIERS REPORT REVIEWED BY:    
NAME (PRINT): VESDESROSIERS NAME:   INITIALS:    
CGSB LEVEL: 2 1<sup>ST</sup> TECHNICIAN CGSB LEVEL:   2<sup>ND</sup> TECHNICIAN  
CGSB REG. No: 30449 CGSB REG. No:



# RAPPORT D'INSPECTION NON DESTRUCTIVE

RAPPORT#

(SUITE)

REPORT# P-05496

PAGE 2 DE 2

CLIENT DART AEROSPACE  
ATTENTION LINDA LACELLE / CHANTAL / IANDATE JAN/26/2011  
ACUREN W/O: 188-11-02103HEURE ☒ AM ☐ PM

## RÉSULTATS

☐ MÉTRIQUE ☒ IMPÉRIALE

ITEM	COMMENTS	ACCEPT	REJECT	ITEM ID
8	CROSS TUBE W.O. ID 61763	✓		ITEM ID: D350-748-101(H.F.)
9	CROSS TUBE W.O. ID 61764	✓		D350-748-101(H.F.)
10	CROSS TUBE W.O. ID 61765	✓		D350-748-101(H.F.)
11	CROSS TUBE W.O. ID 61766	✓		D350-748-101(H.F.)
12	CROSS TUBE W.O. ID 61767	✓		D350-748-201(H.A.)
13	CROSS TUBE W.O. ID 61768	✓		D350-748-201(H.A.)
14	CROSS TUBE W.O. ID 61769	✓		D350-748-201(H.A.)
15	CROSS TUBE W.O. ID 61770	✓		D350-748-201(H.A.)

— NO REJECTABLE INDICATION WAS DETECTED, AS PER APPLICABLE STANDARD

## Étendue des services

L'entente selon laquelle le Groupe Acuren Inc. Exécute les services ne concerne que les énoncés par écrit. En aucune circonstance ces services ne s'étendent au-delà de l'exécution des services demandés. Il est entendu que toutes les descriptions, les observations et les expressions d'opinions faites par Acuren reflètent les opinions ou les observations de l'entreprise fondées sur l'information et les hypothèses fournies par le propriétaire/opérateur, et elles ne constituent pas des déclarations ou des garanties ou ne peuvent être interprétées comme constituant. Le groupe Acuren Inc. N'assume aucune des responsabilités du propriétaire/opérateur, et le propriétaire/opérateur conserve la responsabilité entière des décisions prises en matière d'ingénierie, de fabrication, de réparation et d'usage à partir de l'information ou des données fournies par Acuren en rapport avec les services décrits dans les présentes ne peuvent excéder le coût des services rendus.

## Norme de Diligence

Dans l'exécution des services, le Groupe Acuren inc. Applique le degré de diligence, le soin et la compétence normalement exercés dans des circonstances semblables par d'autres fournisseurs de ce type de services opérant dans la même localité ou dans une localité similaire. Aucune autre garantie, implicite ou explicite, n'est faite ou voulue par le Groupe Acuren Inc.

## SIGNATURES

REPRÉSENTANT CLIENT

TECHNICIEN (SIGNATURE):

NOM (MOULIÉ):

ONGC NIVEAU 2 SNT NIVEAU 2ONGC N° REGISTRATION 3049ONGC NIVEAU — SNT NIVEAU —ONGC N° REGISTRATION —FTJ#: EG3121RAPPORT  
RÉVISÉ PAR:

NOM

INITIALES